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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/881,089 | 06/15/2001 | Masahiko Fujita | Q64816 | 7257 |

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EXAMINER

LE, DANG D

ART UNIT PAPER NUMBER

2834

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,089

Applicant(s)

FUJITA ET AL.

Examiner

Dang D Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/4/02 have been fully considered but they are not persuasive. The applicant's argument is on the ground that "Yasutaka does not disclose that the coil end of the coil is crushed". It is noted that the claims neither clearly recite this limitation.

As a result, the rejection of claims 1-17 over Lund in view of Yasutaka is still deemed proper and repeated hereinafter.

Election/Restrictions

2. Newly submitted claims 18-24 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: these claims are directed to the method of forming a stator which is classified in class 29, subclass 596.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 18-24 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lund (US 3,453,468) in view of Yasutaka et al. (JP 63-194,543).

Regarding claim 1, Lund shows a stator (1) for an alternator comprising:

- A stator core (2) fixed to a case and facing a rotor, and formed in a circumferential direction with a number of radially extending slots (4) of a rectangular cross section; and a stator coil (5) installed in said slots of said stator core; and
- Said stator coil (5) comprising wire-shaped conductors wound so as to alternately occupy an inner layer and an outer layer (Figure 2) in a slot depth direction within said slots at intervals of a predetermined number of slots (column 2, line 65), said conductors being bent back (Figures 1-2 and 3-4) outside said slots at axial end surfaces of said stator core to form a plurality of turn portions, said plurality of turn portions being bent back in a similar shape inclined with respect to an outer circumferential surface of the stator core and so as to align in rows in a circumferential direction and form coil end groups, and, a cross-section of at least a principal portion of said stator coil inside said slots is approximately rectangular.

Lund does not show the stator coil being formed into predetermined shape prior to installation in the slots and a cross-section of at least a portion including end portions of said coil end is approximately circular or approximately elliptic, and a cross sectional area of said approximately rectangular cross-sectional portion differs from that

of said approximately circular cross-sectional portion or said approximately elliptic cross-sectional portion.

Yasutaka et al. show the stator coil being formed into predetermined shape prior to installation in the slots (Figure 4) and a cross-section of at least a portion including end portions of said coil end being approximately circular (Figure 5) or approximately elliptic, and a cross sectional area of said approximately rectangular cross-sectional portion differs from that of said approximately circular cross-sectional portion or said approximately elliptic cross-sectional portion for the purpose of reducing heat.

Since Lund and Yasutaka et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make a cross-section of at least a portion including end portions of said coil end approximately circular or approximately elliptic, and a cross sectional area of said approximately rectangular cross-sectional portion different from that of said approximately circular cross-sectional portion or said approximately elliptic cross-sectional portion as taught by Yasutaka et al. for the purpose discussed above.

Regarding claim 2, it is noted that Yasutaka et al. also show a cross section of said conductors comprising said coil ends being approximately circular or approximately elliptic throughout a substantial entirety of said conductors (Figure 3).

Regarding claim 3, it is noted that Yasutaka et al. also show a cross-sectional area of said conductors inside said slots being larger than a cross-sectional area of said conductors comprising said coil ends.

Regarding claim 6, it is noted that Lund also shows said stator coil comprising a continuous conductor wound so as to alternately occupy an inner layer and an outer layer in a slot depth direction within said slots at intervals of a predetermined number of slots, said conductor being bent back outside said slots at both sides of said stator core.

Regarding claim 7, it is noted that Lund also shows a plurality of said conductors being disposed in a radial direction of said slots, and a cross section of said conductors in said slots is an approximately rectangular shape having long sides in a radial direction.

Regarding claim 8, it is noted that Yasutaka et al. also show said conductors comprising four (4) or more layers in said slots, and said stator coil comprising two (2) or more rows of coil end groups.

Regarding claim 9, it is noted that Yasutaka et al. also show a hardness of said conductors of said coil ends being less than that of said conductors in said slots.

Regarding claim 10, it is noted that Yasutaka et al. also show said rotor further comprising a air-cooling fan (Figure 9) being rotationally driven together with said rotor.

Regarding claim 11, it is noted that Lund also shows a varnish or resin being applied to said coil end groups (column 3, lines 35-45).

Regarding claim 13, it is noted that Yasutaka et al. also show portions of said conductors of an approximately circular cross section throughout installed in said slots being pressed and made to an approximately rectangular cross section.

Regarding claim 14, it is noted that Yasutaka et al. also show portions of said conductors installed in said slots pressed so as to make a cross-sectional area thereof larger than a cross-sectional area of said conductors of said coil ends.

Regarding claim 15, it is noted that Yasutaka et al. also show portions of said conductors of an approximately circular cross section throughout being installed in said slots and pressed to an approximately rectangular cross section.

Regarding claims 12, 16 and 17, it is noted that the method of forming portions corresponding to coil ends in said conductors would be inherent and obvious since the prior art references meet the structural limitations of the claimed device.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lund (US 3,453,468) in view of Yasutaka et al. (JP 63-194,543) as applied to claim 1 above, and further in view of Kobayashi.

Regarding claim 4, the stator of Lund modified by Yasutaka et al. includes all of the limitations of the claimed invention except for said stator coil comprising a plurality of U-shaped conductor segments, end portions thereof being joined to each other, and a cross section of at least a portion including ends of turn portions of said U-shaped conductor segments is approximately circular or approximately elliptic.

Kobayashi shows a coil comprising a plurality of U-shaped conductor segments (Figure 3), end portions thereof being joined to each other, and a cross section of at

least a portion including ends of turn portions of said U-shaped conductor segments is approximately circular or approximately elliptic for the purpose of improving bending of a round wire.

Since Lund, Yasutaka et al. and Kobayashi are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make said stator coil with a plurality of U-shaped conductor segments, end portions thereof being joined to each other, and a cross section of at least a portion including ends of turn portions of said U-shaped conductor segments is approximately circular or approximately elliptic as taught by Kobayashi for the purpose discussed above.

Regarding claim 5, it is noted that Kobayashi also shows a cross section of end portions of said U-shaped conductor segments being approximately circular or approximately elliptic.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information on How to Contact USPTO

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
January 31, 2003

PC

Dang D Le